6. MASTER MAKING AREA

CONTENTS

Operation and Function VI-1

1. Image Scanning Section VI-2
[Theory of Operation]
1. Original Feed System VI-2
2. Original Feed Check System VI-4
3. Image Scanning System VI-6

[Removal Procedures & Precautions for Installation]
1. Image Scanner Unit VI-8
2. ADF Unit VI-8
3. Digitizer Unit VI-9
4. Image Processing PCBs VI-9
5. Image Scanning Section VI-9

[Adjustment Procedures]
1. Sensitivity of Original IN Sensor VI-10
2. Position of ADF Interlock Switch VI-11

2. Master Making Section VI-12
[Theory of Operation]
1. Master Making System VI-12
2. Master Loading System VI-14

[Removal Procedures & Precautions for Installation]
1. Thermal Print Head VI-16
2. Write Roller VI-17

[Adjustment Procedures]
1. Sensitivity of Master Detection Sensor VI-18
2. Sensitivity of Master End Sensor VI-19
3. Tension of Write Pulse Motor Belt VI-20
4. Tension of Loading Pulse Motor Belt VI-21
5. Position of TPH Home Position Switch VI-22
6. Thermal Power of Thermal Print Head VI-23

Operation and Function

– Image Scanning Section –

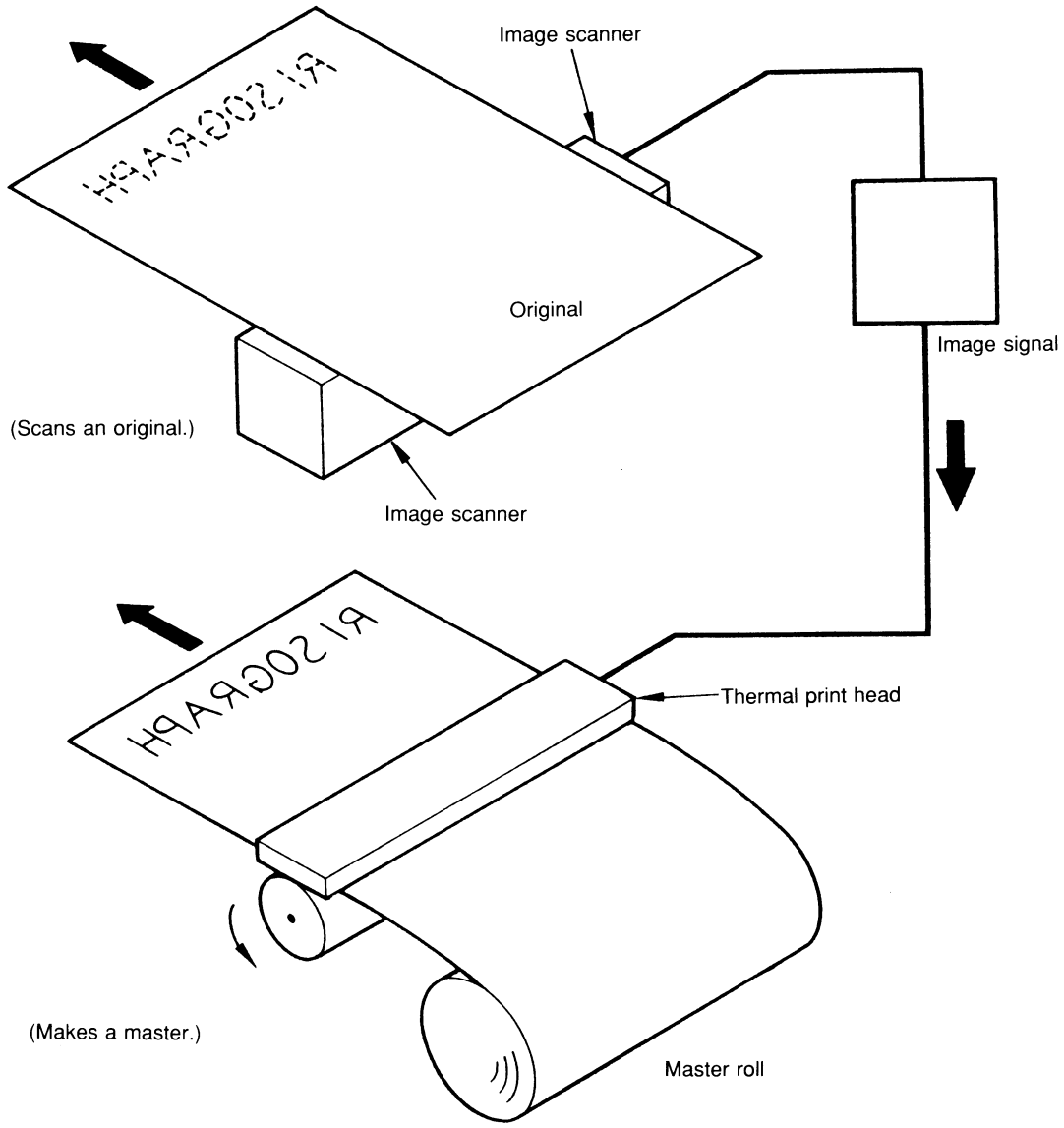
Scans an original with a contact-type image scanner, while the Read pulse motor transports the original through the section.

The Image scanner converts the scanned density of the image into electronic signals, which are processed in various ways by the Image processing PCBs.

– Master Making Section –

Creates an image on a master as the master material is fed to the Thermal print head by the Write pulse motor.

The signals from the Image processing PCBs control the heating of the Thermal print head, and the heated areas of the Thermal print head make holes in the master material to recreate the same image as an original on the master.



1. Image Scanning Section

[Theory of Operation]

1. Original Feed System

- Pick-up of Original

When the "START" button is pressed while the Original detection sensor is detecting an original, the Original feed solenoid is activated, causing the Original stopper to lower and release the original, and simultaneously the Original feed roller lowers onto the original.

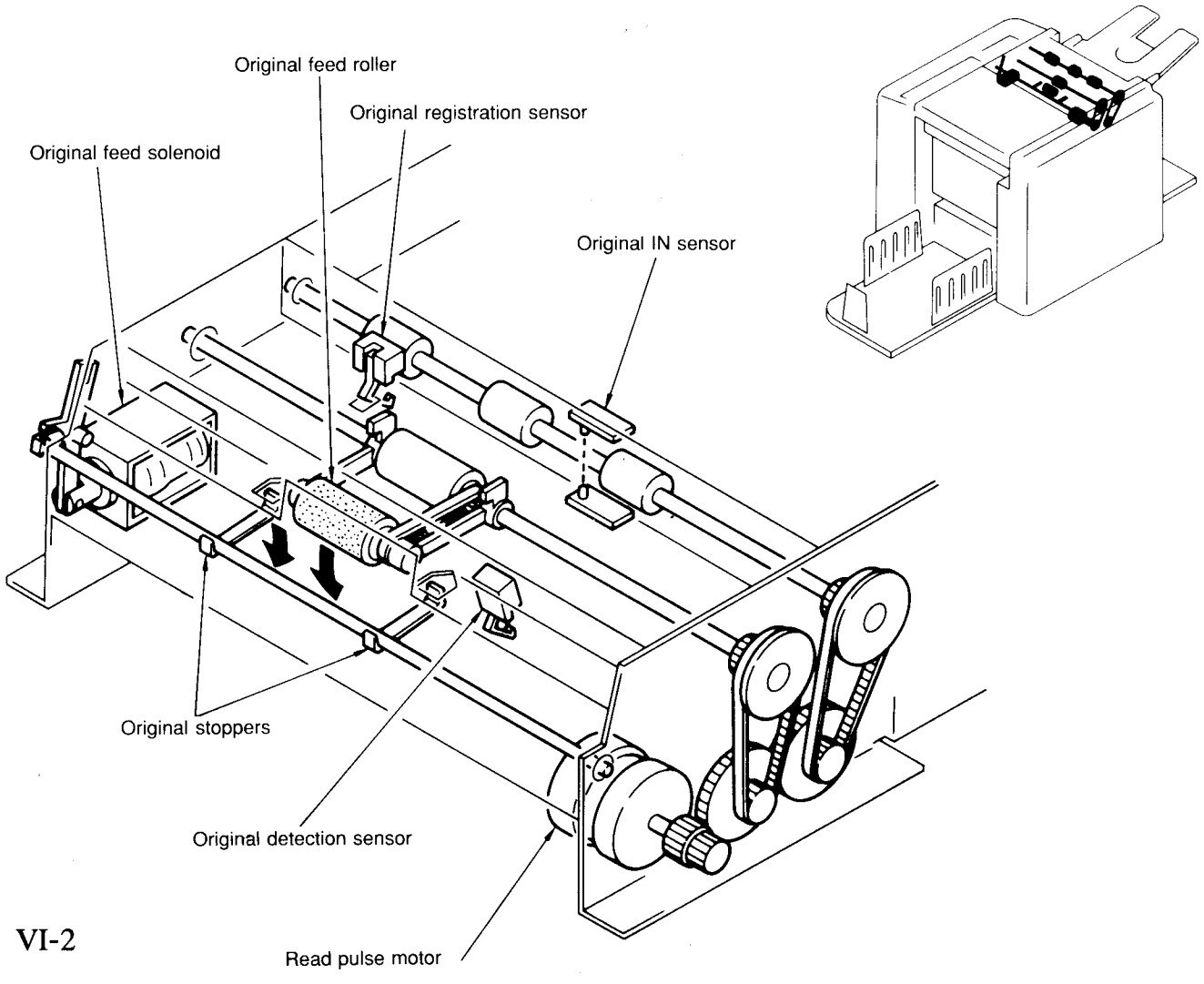
After **a 200-ms delay**, the originals, when a stack is set on the original table, are separated by the braking action, caused by an one-way clutch spring of the Lower original pickup roller when it is in contact with the Upper one, and the Read pulse motor starts rotating counterclockwise to feed one sheet of originals.

- Original feed to Image scanner

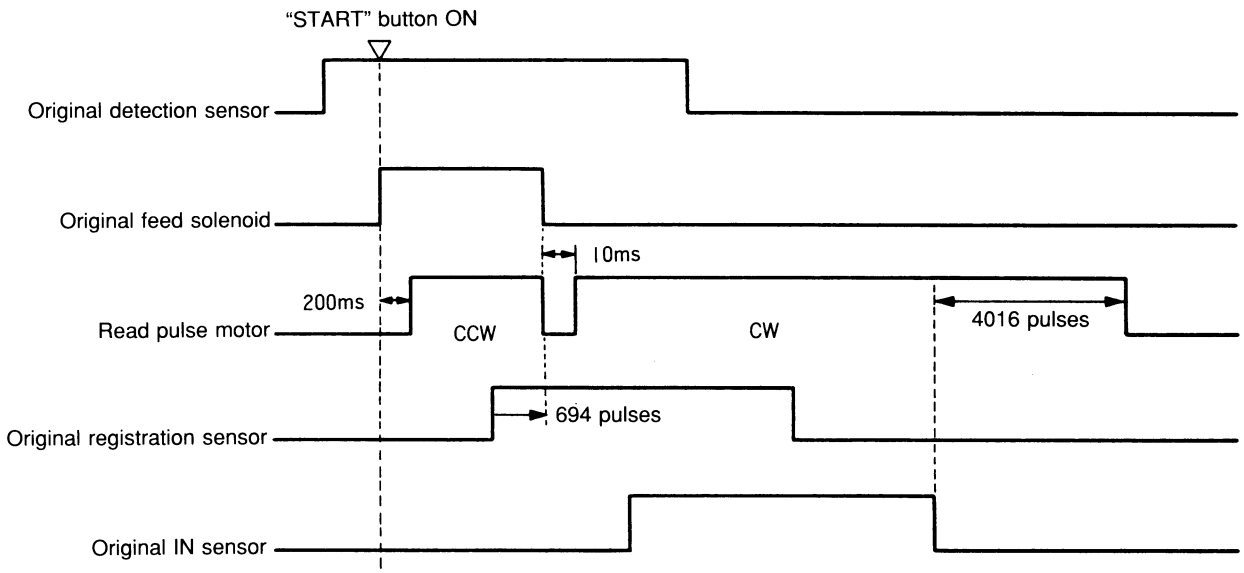
For the scanning registration, the lead edge of the fed original is detected by the actuator of the Original registration sensor (the light path of the sensor is opened). When the Read pulse motor rotates **694 pulses** after the above original registration (sensor detection), the Original feed solenoid is turned off and the Read pulse motor reverses the rotation direction to clockwise, to continue feeding the original.

- Finish of Original feed

When the trail edge of the original has passed through the light path of the Original IN sensor, the Read pulse motor keeps on rotating **4016 pulses** to finish the transportation of the original to the Original tray, and then stops.



Original Feed System



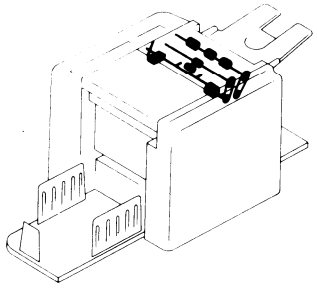
2. Original Feed Check System

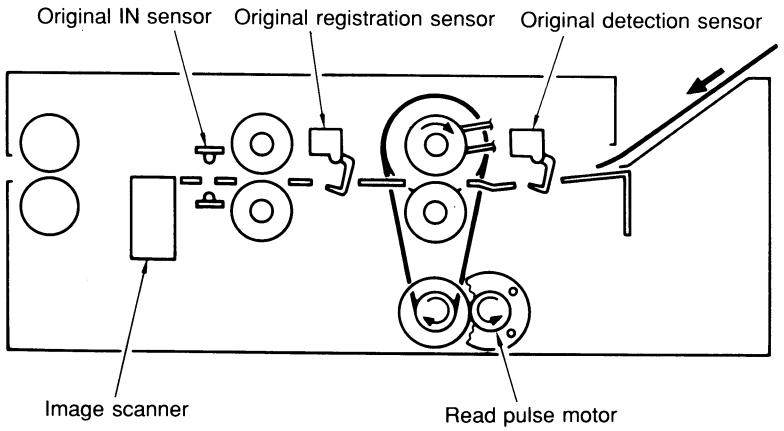
The following 3 kinds of original feed troubles are detected by the Original registration sensor and Original IN sensor.

1. **[No original feeds or Original slips.]**
   – Check system –
   If the actuator of the Original registration sensor has not been pushed up, to open the light path, within **2646 pulses** rotation after the start of the Read pulse motor, it is judged that the original has not been fed.
   When this occurs, the master making operation stops and the jam message **"ORIGINAL MIS-FEED/RESET ORIGINAL"** is displayed on the panel for two seconds.

2. **[Original jam before the Image scanner]**
   – Check system –
   If the light path of the Original IN sensor is not blocked by the original within **677 pulses** after the Read pulse motor started rotating clockwise, it is judged that the original has not been fed to the Image scanner.
   When this occurs, the master making operation stops and the jam message **"ORIGINAL JAM/ RESET ORIGINAL"** is displayed on the panel.

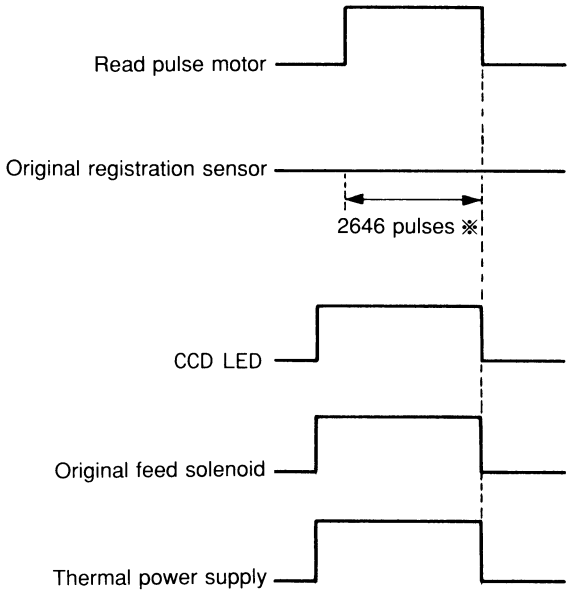
3. **[Original oversize or jam over the Image scanner]**
   – Check system –
   If the light path of the Original IN sensor has not been opened within **14331 pulses** after it was blocked, it is judged that the original is too long or that it has misfed over the Image scanner.
   When this occurs, the master making process is interrupted and the master will be loaded onto the Drum.
   The Drum will then rotate once and stop, and the jam message **"ORIGINAL JAM OR OVERSIZE/ REMOVE JAMMED ORIGINAL"** will be displayed on the panel.





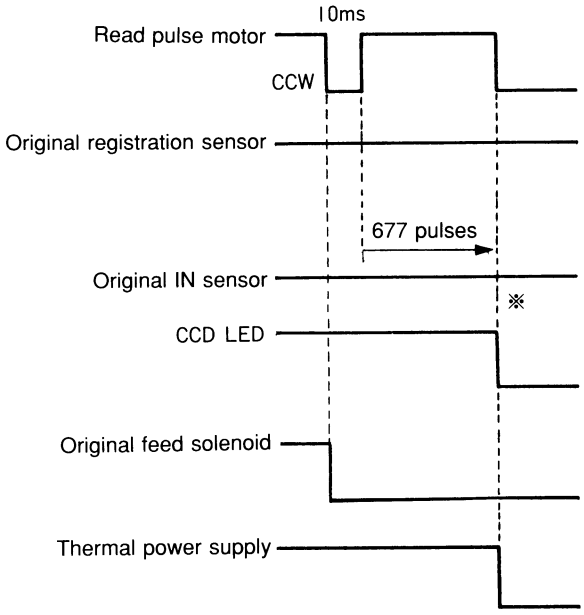
Original Feed Check System

[No original feeds or Original slips]



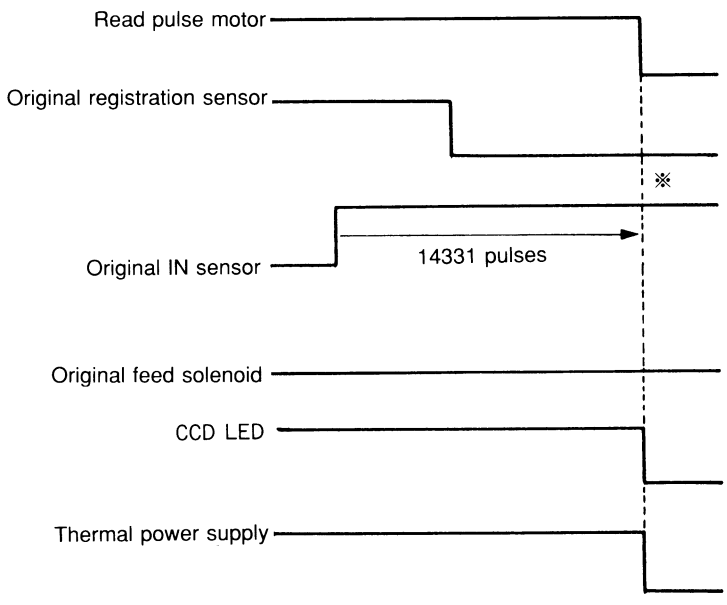
※ Where concluded that an original hasn't been fed.

[Original jam before Image scanner]



※ Where concluded that an original has jammed before Image scanner.

[Original oversize or jam over Image scanner]



Starts loading the master onto the Drum.

※ Where concluded that an original is too long or has jammed over Image scanner

3. Image Scanning System

- Construction and Function of Image Scanner

The Risograph RC series uses a contact-type image scanner to read the image of an original during scanning.
The Image scnner consisits of numerous yellowish-green LEDs, arranged in parallel rows.
These LEDs provide the light source which will illuminate the original during the "Read" operation.
The light reflected according to the contrast of the original is passed back through the converging rod lens array (optical fibers) in the Image scanner to the CCDs (Charged Coupled Devices) and converted into an electrical signal.

- Time for Shading Compensation

When the "START" button is pressed with an original detected by the Original detection sensor, the LED array lights and the Original feed solenoid are turned on simultaneously.
In a short time **(200ms)**, the original starts to be fed and a little later the Original feed solenoid is turned off.
10ms later, the shading signal has been output for **200ms** to perform "Shading Compensation" operation.

- The Start of Scanning

Image scanning is started by the Read and Write start signal, which is output **900 pulses** after the lead edge of the original was first detected by the Original IN sensor.

- The Finish of Scanning

Image scanning is completed by turning off the LED arrays and the Read and Write start signal **819 pulses** after the trail edge of the original is detected by the Original IN sensor.

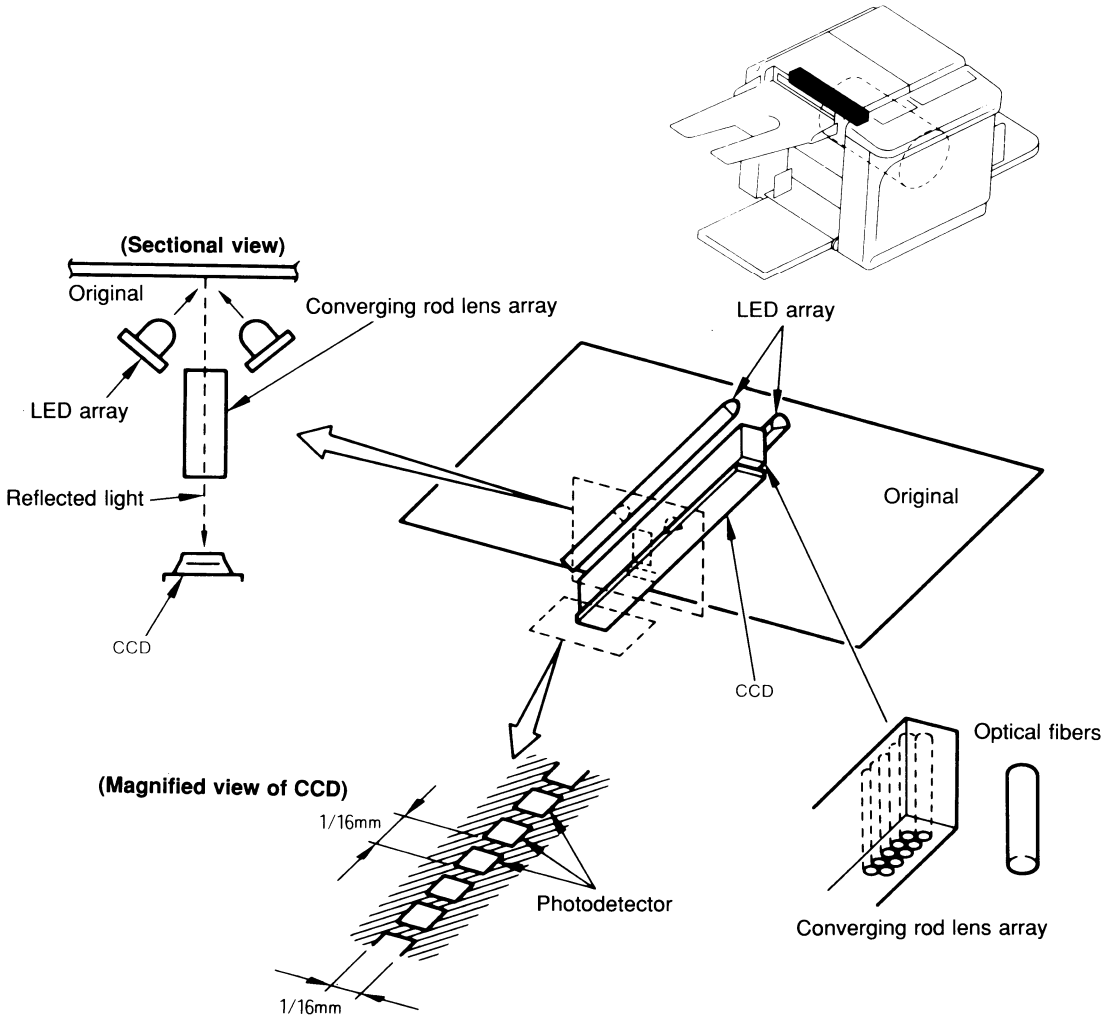
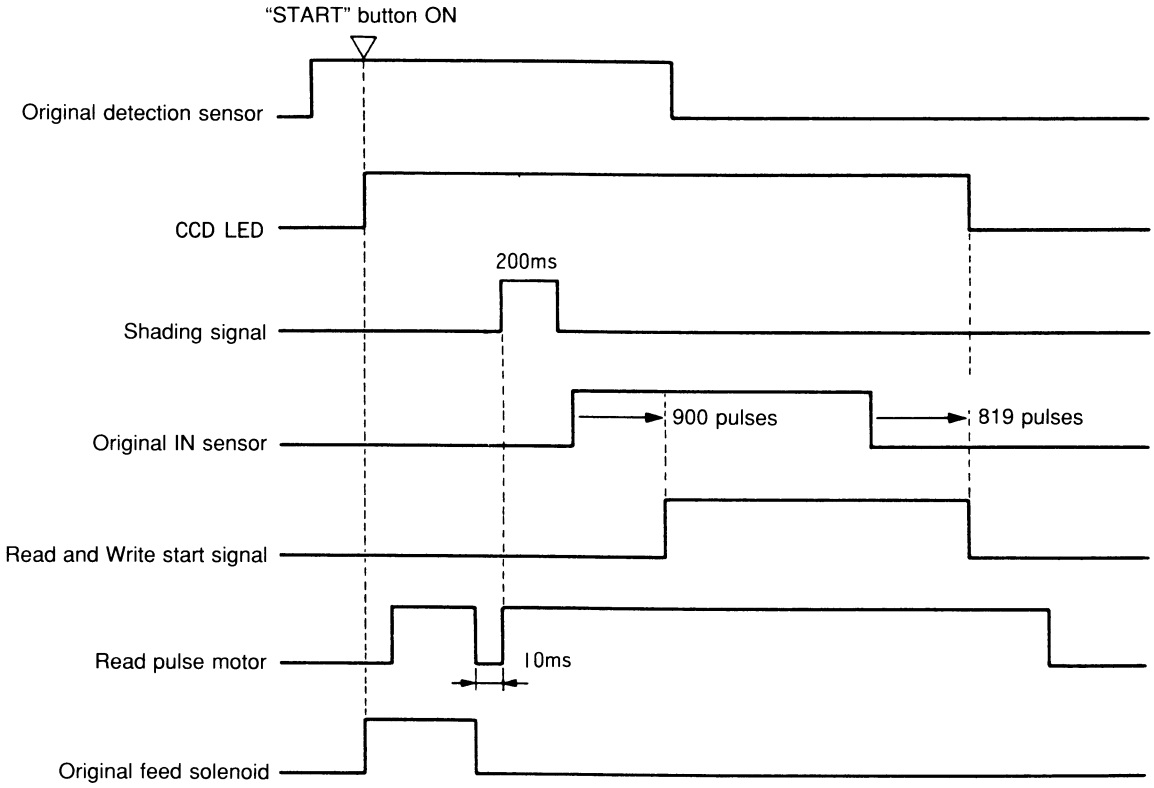



Image Scanning System